Remarks

Claims 1 to 14 are pending. Claims 1 – 14 have been amended, and claims 15-18 have been added. The terms "layers of fibers" and "fibers" have replaced the terms "layers that are discontinuous in the cross-web direction" and "phases" respectively. Basis for amendments can be found in the specification at: page 4, lines 11-16; page 12, lines 21-23 and 30, page 13, lines 8-9 and 15, page 13, line 29-page 14, line 22, and Examples 1-12. Entry of these amendments and reconsideration of the application are respectfully requested.

§ 112 Rejections

The rejection of claim 5 under 35 USC § 112, second paragraph, has been avoided by amending the claim, inserting Markush language in accordance with the Examiner's remark.

§ 102 Rejections

Claims 1-3 and 13 stand rejected under 35 USC § 102(b) as being anticipated by or, in the alternative, under 35 USC § 103(a) as obvious over either the English translation of DE 19806452A1 or WO 92/12857 (Schrenk). This rejection has been avoided by the claim amendments.

Attached to this amendment is a table comparing certain elements in the claims in the present application with the disclosures of the references cited against the claims. The undersigned attorney has studied the references, and if a listed element of the present claims as amended was found in a reference, it was noted by its location in the reference in the table. A blank space in the table corresponding to a claim element indicates that no disclosure of that claim element was found in the reference. The table is a convenient summary of the differences between the pending claims and the references. The abbreviated descriptions of the claim elements are for purposes of convenient presentation in the table and do not change the actual claim language or scope.

The Examiner has correctly noted that both references teach polymeric coextruded, multilayer webs. However, the claims, as amended, require at least one pressure sensitive adhesive layer (PSA) in the multilayer web. Although, Schrenk discloses adhesive or glue in his construction (page 27, ll. 27-29, p. 29, ll. 27-29 and p. 30, ll. 25-33), his adhesive is a tie layer to bond his first and second polymers. There is no disclosure of a PSA in either reference. The

term "PSA" is defined in the present specification at page 5, and it refers to a specific type of adhesive.

Schrenk forms his multilayer construction in a feedblock die 17 upstream of the actual shaping die 22 from which the multilayer stream exits apparatus 10. Schrenk describes the film resulting from his process (having passed through the feedblock 17 mechanical manipulating means 20 and shaping die 22) as containing ribbons 62 which appear to be rectangular in cross-section (see Figure 3). These ribbons are not the same as the fibers of the present claims which are generally round in cross-section.

Although the Examiner correctly pointed out that DE '452 discloses the use of a cover layer on his thermoplastic film, the resulting film would not anticipate the multilayer film now claimed in this application. DE '452 does not disclose a PSA continuous layer. It does not disclose any fiber layers. Instead, it teaches a thermoplastic film in which thermoplastic elastomer (TPE) is coextruded with a thermoplastic resin and/or another TPE in parallel strips ("like two intersecting combs" p. 3 third full paragraph) whereby a single-layered film is produced made of at least two different synthetic resins (p. 2, sixth paragraph).

Even with the disclosure of a cover film, DE '452 does not disclose at least three layers that are continuous down-web and cross-web as now required in the amended claims. In fact, this reference distinguishes itself from multilayer films. In the penultimate paragraph on page 2 of the reference, it draws a contrast between the composite structure which it describes (having different synthetic resins in the same layer side-by-side) with film layers on top of each other obtained through co-extrusion techniques. At page 5 of the reference second full paragraph, it further distinguishes the films taught in the reference from coextruded multilayer films, stating that the coextruded films are isotropic (i.e. have the same physical properties in all directions in the plane of the film).

With the distinctions now existing between amended claims 1-3 and 13, neither Schrenk nor DE '452 anticipates the claims. Neither do they make claims 1-3 and 13 obvious, since neither reference contains any teaching on multilayer PSA webs. Schrenk is directed to decorative films made to be reflective or iridescent in appearance. The goal of DE '452 is to make a film that is plastic in one direction (down-web) and elastic in the other (cross-web). There is nothing in either reference to cause one to consider making a multilayer PSA web.

§ 103 Rejections

Claims 4-12 and 14 stand rejected under 35 USC § 103(a) as being unpatentable over the English translation of DE 19806452A1 or WO 92/12857. This rejection has been avoided by the amendments to the claims. New claims 15-17 will be discussed as though this rejection had been applied to them.

The Examiner has said in part 7 of the Office Action that, "the remaining dependent claims are believed merely to recite a wide variety of various generic compositions and related to species as well as layers and other conventional structures in the art whose selection is but an obvious design choice …."

To the contrary, the inventions of claims 4-12 and 14-18 all represent subspecies of the present invention in which at least two layers of fibers have been embedded between continuous polymer layers, using the particular combinations of polymer types and fibers currently claimed. The subspecies of claims 4, 5, and 7 comprise at least two fiber layers embedded between at least three layers of acrylic PSA. In the subspecies of claim 6, the continuous layers are foamed polymer. In the subspecies of claims 9-12, the continuous layers comprise porous polymer, and the subspecies of claims 15-18 comprise particular combinations of continuous layer and (in claims 16 and 17) fiber layer materials which yield conformable multilayer webs. These subspecies have benefits which are described in the specification and will be mentioned hereinafter.

The Examiner has mentioned Wyeth U.S. Patent 3,983,877 and Schrenk U.S. Patent 3,759,647 as evidence of the state of the art, referring to specific drawings an passages in those patents. Neither one shows a multilayer, coextruded web in which at least two layers of fibers continuous down-web and discontinuous cross-web are embedded between continuous layers (continuous down and cross-web) and are separated from each other by continuous layer material. Wyeth discloses a laminated article comprising two sheets in interfacial contact one of which has integral projections (17 or 21 in the figures). Schrenk relates to multilayer plastic articles, and Figure 11 shows many layers, but not one is a layer of fibers. Neither Schrenk nor Wyeth bring one any closer to the rejected claims than DE '452 or Schrenk WO 92/12857.

For the sake of clarity, the space in the attached comparison table corresponding to the "fibers comprise nonpressure-sensitive adhesive, thermoplastic polyolefin, etc." for DE '452 has been left blank although this reference discloses the use of polyolefins at page 3, last paragraph, page 4, first paragraph, and Example 1. Such uses of polyolefins by DE '452 result in narrow strips of thermoplastic polymer (see Example 1), not fibers.

As shown by the attached comparison table, there are substantial differences between the references and the claims. In order to overcome those differences, a person of ordinary skill would have to make the following modifications to the cited references:

- In order to arrive at amended claims 4, 5 or 7, one must modify both Schrenk and DE 452 by introducing at least three layers into the film of Schrenk or DE 452 that are continuous acrylic PSA in both the down-web and cross-web direction; and further modify DE 452 by: i) changing its single layer of side-by-side strips of TPE and thermoplastic or other resin with at least three layers of fibers; ii) adding enough continuous layers (beyond his cover layer) to have at least three continuous layers down-web and cross-web; iii) embedding each fiber layer between continuous layers; and iv) arranging the fiber layers so that they are separated from each other by continuous layer material.
- In order to have amended claim 6, one must use foamed PSA as a continuous layer material despite the fact that no foamed PSA is disclosed in either Schrenk or DE '452.
- To arrive at amended claim 8 one must: utilize as continuous layer material blends of polyolefins and elastomeric block copolymers, natural or synthetic rubbers or blends of isotactic polypropylene and elastomeric polypropylene, despite the fact that no such blends are taught in either Schrenk or DE '452; and also utilize as fiber material cyclic polyolefins or blends of cyclic polyolefins with non-cyclic polyolefin, despite the lack of such polymers or blends in internal or fiber phases in the films of Schrenk or DE '452.
- To arrive at amended claim 9, in is necessary to make porous continuous layers even though Schrenk and DE '452 do not disclose porous materials.
- To arrive at claim 10, it is necessary to make the porous continuous layer from polypropylene and oil even though Schrenk and DE '452 make no mention of using a mixture of polypropylene and oil to make a porous continuous layer.

- To have claims 15-17, one must make continuous layers of polyolefins blended with elastomeric block copolymer or rubber or atactic polypropylene blended with isotactic polypropylene, despite no teaching in either reference to use such polymer blends for their multilayer films.
- To arrive at claim 17, one must use fiber layers comprising copolymer of norbornene and ethylene, and continuous layers comprising a blend of atactic polypropylene and isotactic polypropylene, although neither reference discloses these polymer materials.

The above modifications are too great and too numerous to be obvious. There is no reason that arises from the art itself for making these modifications to the cited art. Hindsight, with the benefit of the present inventors' work, would be required in order to make the above modifications. Therefore, as to the amended claims, a *prima facie* case of obviousness has not been established.

The non-obviousness of the claims is further supported by the benefits of the invention:

- In the embodiments comprising PSA continuous layers with embedded fibers (claims 4, 5 and 7) the inventive webs have demonstrated increased shear strength and peel strength over multilayer webs without the fiber layers, see specification p. 12, l. 31- p. 13, l. 1, p. 13, ll. 11-14, and Tables 1 and 2. Table 1 shows that the inventive examples (1-4) had shear strengths (values ranging from 5,8223 to over 10,000) many times greater than the comparative examples (72 – 147). The data in Table 2 show that the cross-linked inventive samples also had shear strength values much higher than the shear strength of the comparative example (10,000+ vs. 6,736 minutes) and also substantially improved peel strengths (43-50 as compared to 18 N/dm).
- In the embodiments comprising polymer foam continuous layers (claim 6) the inventive webs have better tensile strength than samples without the embedded fiber layers, see specification p. 13, ll. 15-18 and Table 4. The data in Table 4 show that elastic modulus and maximum force for the inventive examples (8-10) were significantly higher than the comparative example without embedded fiber layers (E-Modulus ranging from 1.98 to 3.70 as compared to 1.18).

- The embodiments comprising porous polymer continuous layers (claims 9-12) show improved strength over similar webs without the embedded fiber layers, see specification p. 14, ll. 23-32 and Examples 13-14. The data in Table 6 show that inventive Example 14 (within the scope of claims 1-11) had both down-web and cross-web modulus (473 and 903 respectively) substantially greater than the comparative example having no embedded fiber layers (363 and 715 down-web and cross-web).
- In the embodiments comprising conformable films (claims 15-18) the inventive webs have a combination of conformability, high stress relaxation and low strain recovery. In addition, they have reduced shrinkage under high temperatures, see specification p. 13, l. 29- p. 14, l. 22 and Examples 11-12. The data in Table 5 show that stress relaxation of the inventive samples (Examples 11-12) was similar to the comparative example without the fiber layers, but the comparative example experienced 28 % shrinkage; whereas the inventive examples experienced none.

There is nothing in either reference cited by the Examiner that would lead to the expectation of these benefits in multilayer webs.

In view of the above discussion, it is respectfully submitted that claims 1-14, as amended, and new claims 15-18 are in condition for allowance. Withdrawal of the rejections under 35 U.S.C. 112, 102, and 103 are requested and a notification of allowability is respectfully solicited. If any issues or questions remain the resolution of which the Examiner feels would be advanced by a conference with Applicants' attorney, he is invited to contact such attorney at the telephone number noted below.

Respectfully submitted,

November 12, 2003
Date

By: Douglas B. Little
Douglas B. Little, Reg. No.: 28,439
Telephone No.: (651) 733-1501

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833